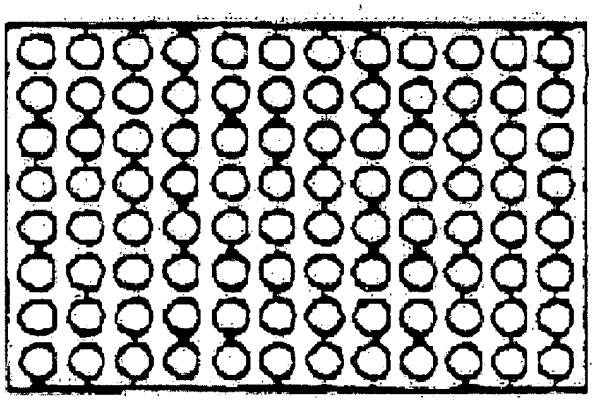
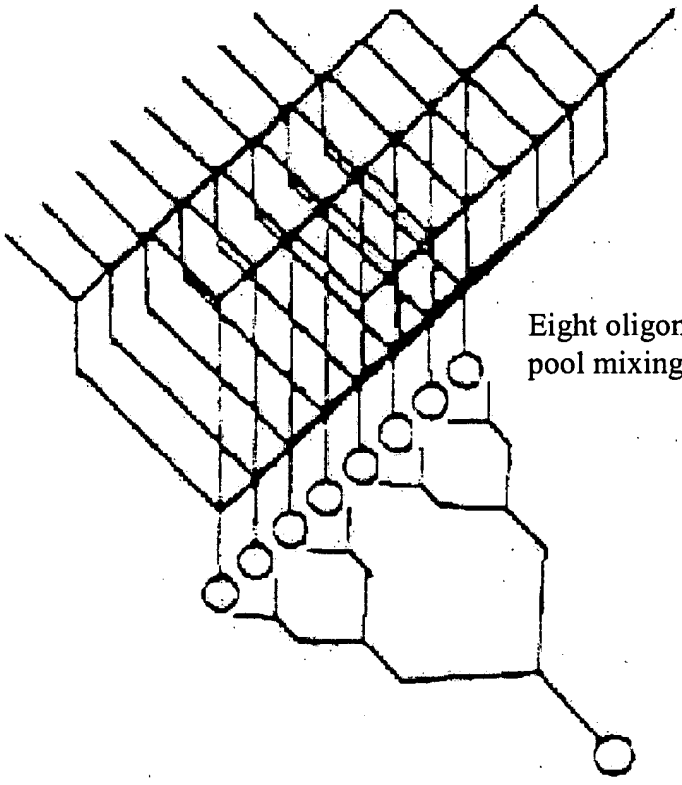


96 oligonucleotides
48 pairs of overlapping
50mers



Eight oligonucleotide
pool mixing, 300 bs. double stranded

One oligonucleotide
assembly, 2400 bs
double stranded

Figure 9

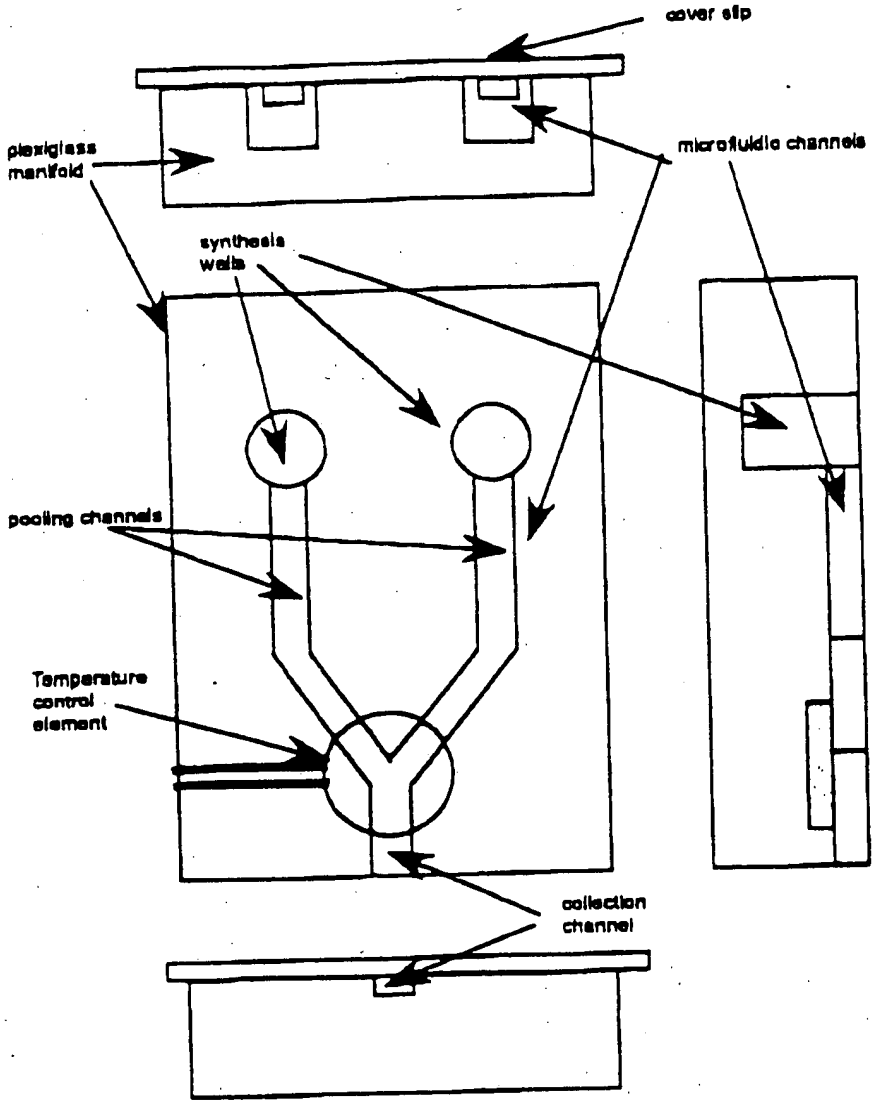

cover slip
plexiglass manifold
microfluidic channels
synthesis wells
pooling channels
Temperature control element
collection channel

Figure 10

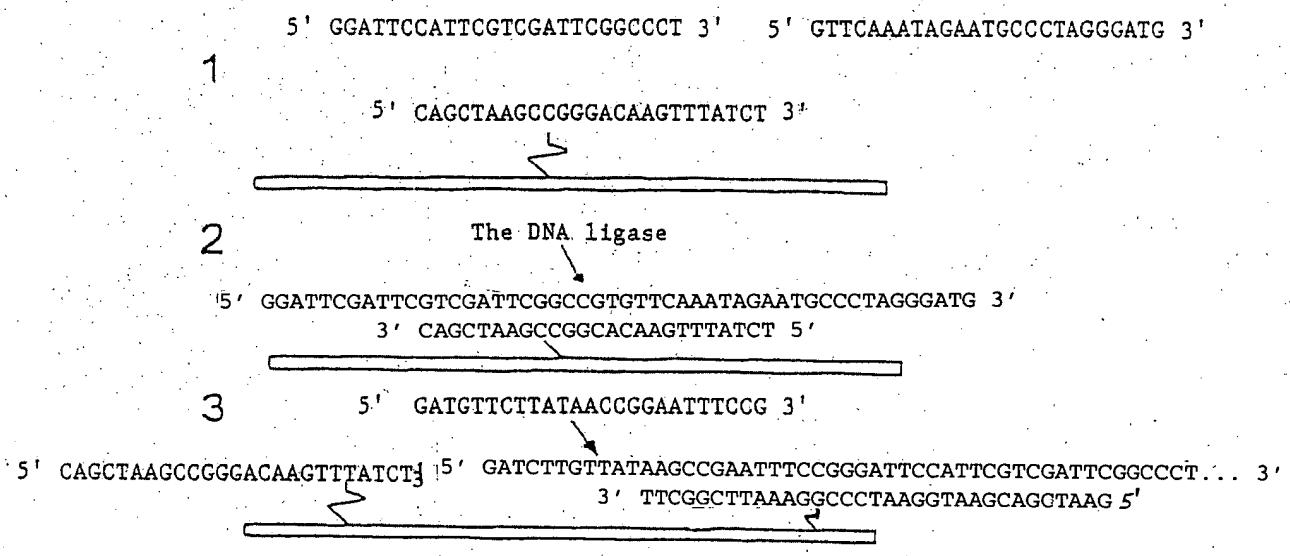

5' GGATTCCATTCGTCGATTCGGCCCT 3'
5' GTTCAAATAGAATGCCCTAGGGATG 3'
1
5' CAGCTAAGCCGGGACAAGTTTATCT 3'
2
The DNA ligase
5' GGATTCGATTCGTCGATTCGGCCGTGTTCAAATAGAATGCCCTAGGGATG 3'
3' CAGCTAAGCCGGCACAAGTTTATCT 5'
3
5' GATGTTCTTATAACCGGAATTTCCG 3'
5' CAGCTAAGCCGGGACAAGTTTATCT 3'
5' GATCTTGTTATAAGCCGAATTTCCGGGATTCCATTCGTCGATTCGGCCCT... 3'
3' TTCGGCTTAAAGGCCCTAAGGTAAGCAGCTAAG 5'

Figure 13

Bidirectional primer extension strategy for gene assembly

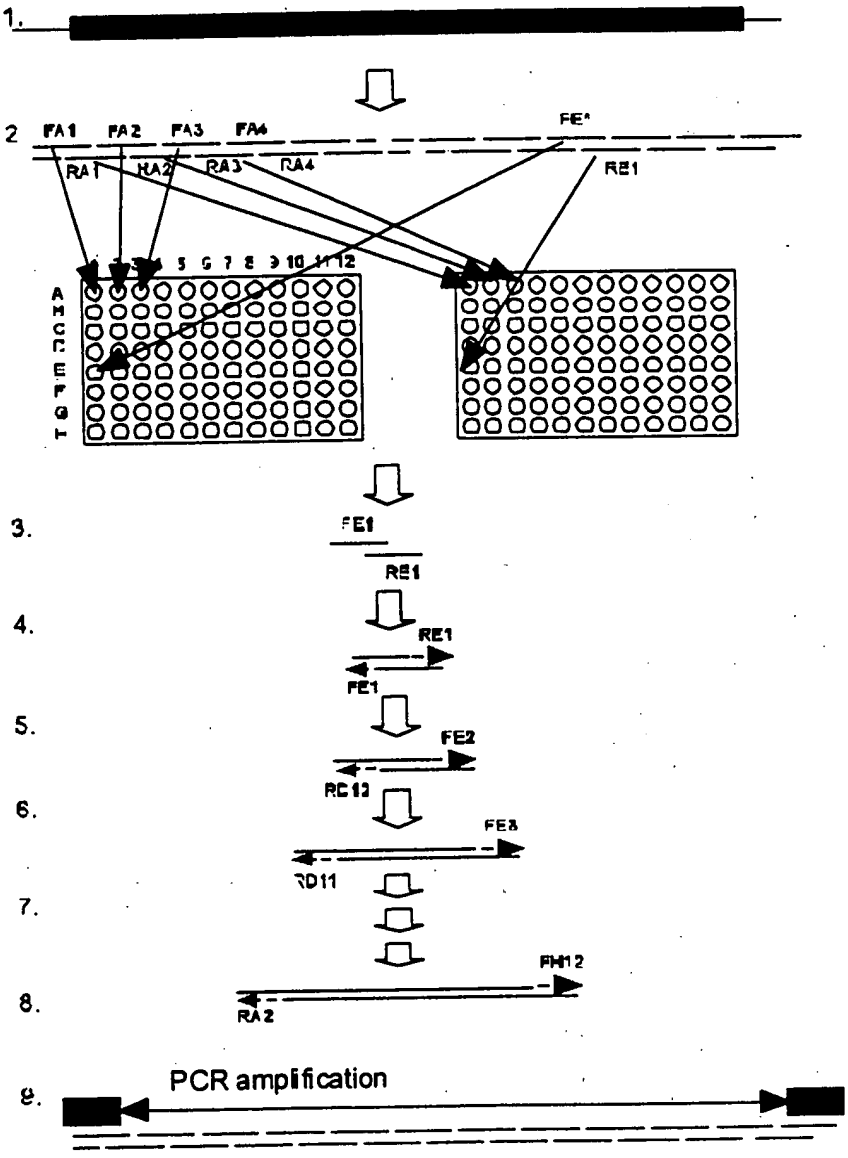


Figure 16

Generation of self-assembling oligonucleotide arrays

Option 1

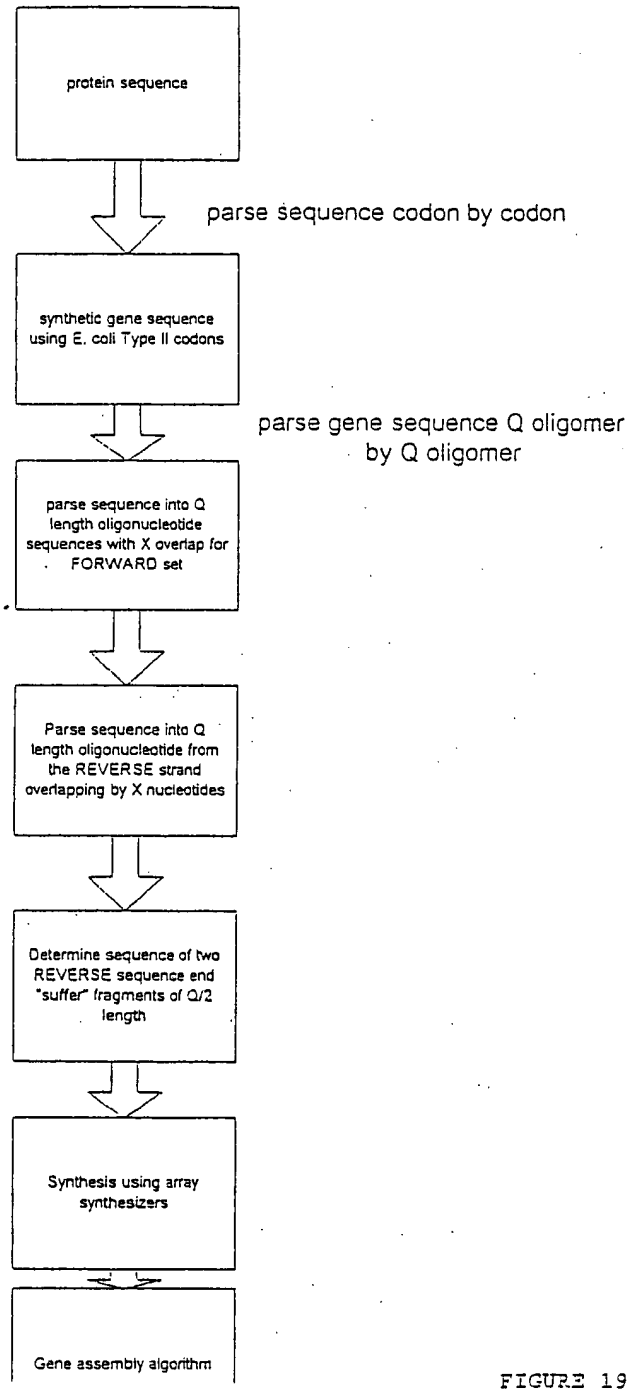


FIGURE 19

Assembly of Self assembling oligonucleotide arrays

Option 1

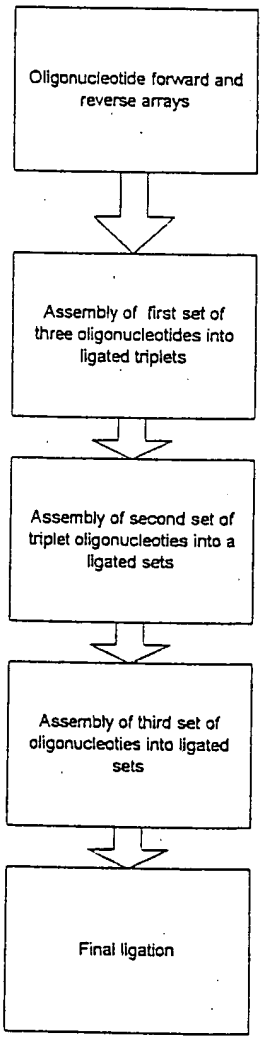


FIGURE 19

Generation of self-assembling oligonucleotide arrays

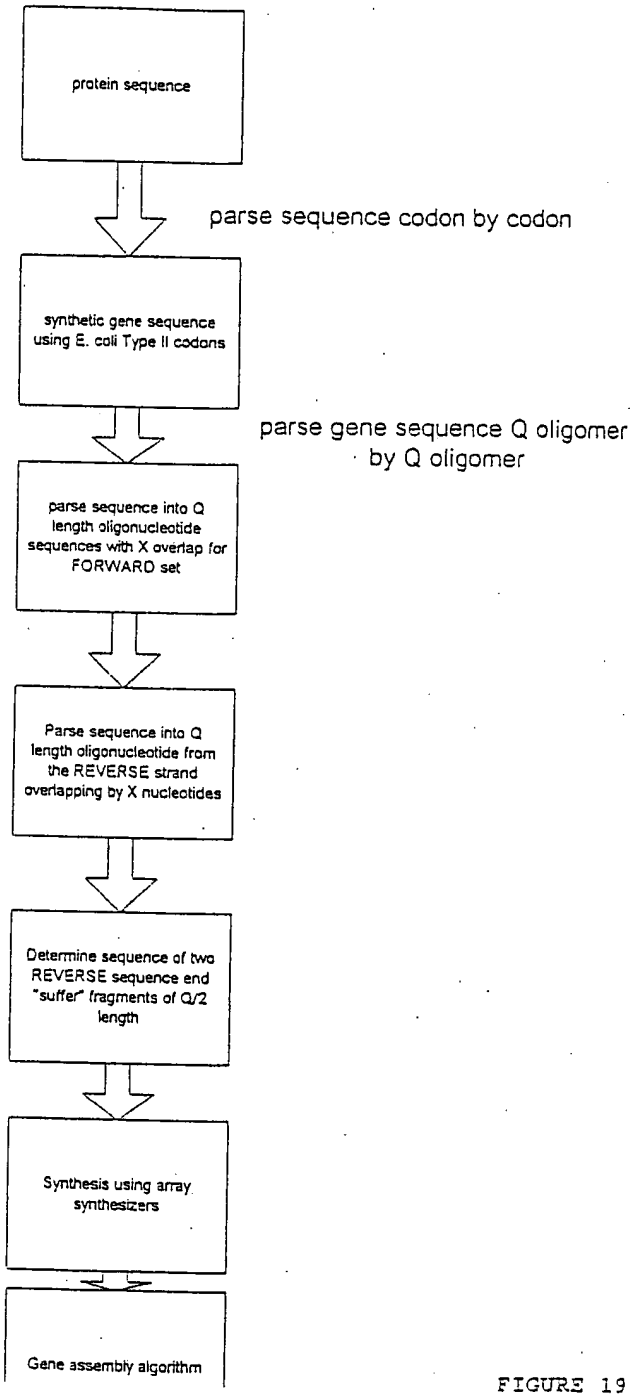


FIGURE 19